



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/609,250

06/26/2003

Venkat Selvamanickam

1014-SP101-US

7760

34456

7590

03/23/2009

LARSON NEWMAN ABEL & POLANSKY, LLP  
5914 WEST COURTYARD DRIVE  
SUITE 200  
AUSTIN, TX 78730

EXAMINER

KACKAR, RAM N

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

03/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/609,250 | <b>Applicant(s)</b><br>SELVAMANICKAM ET AL. |  |
|                              | <b>Examiner</b><br>Ram N. Kackar     | <b>Art Unit</b><br>1792                     |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 26,28-30,32-41,44-46 and 48-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 26,28-30,32-41,44-46 and 48-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/26/2009</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 26, 28-30, 32-41, 44-46 and 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lijima et al (2001/0006042) in view of Vaidya et al (US 5076203).**

Lijima et al disclose a process used for making a buffer layer of yttrium stabilized zirconia (YSZ) or MgO for a superconducting film (Abstract and paragraph 71) using ion assist (39) and teach cooling and positioning a translating substrate (tape like) which could comprise metal like nickel (Paragraph 59) in a deposition chamber for vacuum deposition (abstract and Fig 3), gas inlet (38), source of deposition material (36), means of delivering the deposition material (ion beam -38), means of translating a substrate (24,25), means of positioning the substrate so that deposition material impinges on the substrate (23).

Lijima et al teach that the measure of biaxial texture is FWHM (full width at half maximum) and that it could be minimum at an incidence angle of 50-60 degrees (paragraph 16, 87 and 99). Further Lijima et al disclose various parameters affecting FWHM and disclose it could be below 10 degrees (Fig 13).

Lijima et al do not disclose cooling by injecting gas through gas channels of the substrate block

Vaidya et al disclose a process for cooling and positioning a translating substrate in a deposition chamber for vacuum deposition (Col 1 lines 8-11), gas inlet (Fig 1-17, Fig 6-30), source of deposition material (Fig 6-27), means of delivering the deposition material (electron – beam heater (Col 3 line 35), means of translating a substrate (Fig 6-22) from 0-90 meters per min (Abstract), curved means of positioning the substrate so that deposition material impinges on the substrate (23) whereas the substrate positioning means contains internal liquid coolant channels (23a and 23b) and internal gaseous coolant delivery channels (Fig 6-30, Fig 7-Fig 10 and Col 6 lines 5-68 ) which could use oxygen or argon to allow the temperature from 0 degrees C upwards.

Vaidya et al teach that gas introduction between the support and tape improves thermal coupling between the web and the support and reduces the coefficient of friction between the two (Abstract).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have injecting gas through gas channels of the substrate block for improved thermal coupling and cooling between the web and the support and reduces the coefficient of friction between the two (Abstract).

Regarding the gas channels extending to the first surface and being hollow and open along an entirety of said length, Fig 7-Fig 10 show gas channels, which extend to the first surface through the pores in the porous material since they allow the flow to reach the first surface. It is inherent that the pores work because they are connected to each other continuously up to the surface and they must be hollow to allow the flow to take place.

Regarding claim 26 the channels being of uniform width, the width of gas channels in Vaidya et al are uniform at least behind the porous part. Further the uniformity of width including spacing between channels is to make sure of uniformity of gas ejection behind the tape substrate. The structure disclosed in Fig 7- Fig 10 works in the same way and is equivalent and therefore obvious.

Regarding claim 48 channels being straight and equally spaced basically work the same way as disclosed in Vaidya to eject gas uniformly and perpendicularly to the substrate and is therefore equivalent and obvious.

Regarding claims 49 and 50 it appears that the diameter pertains to channels. In this situation disclosed pores are the channels to allow the flow and their size is a matter of optimization since they determine the flow, which is a process requirement.

Regarding the radius of curvature of the substrate cooling block, it is noted that Lijima et al disclose the importance of incidence angle to quality of coating. Similarly Vaidya et al disclose a slight curvature for the block to optimize cooling and smooth motion of the web.

It is obvious that one of ordinary skill in the art at the time of invention would optimize the curvature so as to get desired quality of coating and cooling of the web while being coated.

Further the large range of curvature suggests that such an optimization will not need unreasonable amount of experimentation.

***Response to Arguments***

Applicant's arguments filed 1/7/2009 have been fully considered but they are not persuasive.

Applicant argues that, Iijima et al. or Vaidya et al do not teach or suggest a substrate block having a radius of curvature of between 2 meters and 25 meters.

Further, Applicant argues that Vaidya et al. teach translating the substrate across a substrate drum having a diameter of the order of 1.5 meters, thus having a radius of curvature of 0.75 meters.

In response, it is noted that the cooling block is shown in Fig 7-Fig 10 and not the drum of Fig 1. Fig 6 shows the block (23) with respect to web motion components and looks very much like claimed block in Fig 3 of the specification.

The other issue about gas channels has been discussed earlier.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 1792

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ram N Kackar/  
Primary Examiner, Art Unit 1792